WHAT IS CLAIMED IS:

1.    A duplexer comprising
a ladder filter and a multimode filter that are
formed on an identical surface of a predetermined
substrate,
a first comb-like electrode of the ladder filter
and a second comb-like electrode of the multimode
filter having an identical layer structure with an
equal film thickness,
the first comb-like electrode and the second
comb-like electrode being formed with single-layer
films mainly containing aluminum,
the relationship among the film thickness h of
the first comb-like electrode and the second comb-like
electrode, the center frequency $f_1$ of the frequency
band of the ladder filter, and the center frequency $f_2$
of the frequency band of the multimode filter, being
expressed as:

$$300 \leqq h \times f_1 \leqq 480$$
$$300 \leqq h \times f_2 \leqq 430.$$

2.    The duplexer as claimed in claim 1, wherein
the relationship among the film thickness h, the center
frequency $f_1$, and the center frequency $f_2$, is expressed
as:

$$300 \leqq h \times f_1 \leqq 420$$
$$350 \leqq h \times f_2 \leqq 410.$$

3.    A duplexer comprising
a ladder filter and a multimode filter that are
formed on an identical surface of a piezoelectric
substrate,
a first comb-like electrode of the ladder filter
and a second comb-like electrode of the multimode

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filter having an identical layer structure with an equal film thickness,

the first comb-like electrode and the second comb-like electrode being formed with single-layer films mainly containing aluminum, or single- or multi-layer films including n layers (n being an integer of 1 or greater), the n layers including a layer mainly containing a metal other than aluminum,

the relationship among the film thickness $h_k$ of the kth layer (k being an integer of 1 or greater) of the first comb-like electrode and the second comb-like electrode, the specific gravity $a_k$ of the metal of the kth layer with respect to aluminum, the center frequency $f_1$ of the frequency band of the ladder filter, and the center frequency $f_2$ of the frequency band of the multimode filter, being expressed as:

$$300 \leqq f_1 \times \sum_{k=1}^{n} (\alpha_k \times h_k) \leqq 480$$

$$300 \leqq f_2 \times \sum_{k=1}^{n} (\alpha_k \times h_k) \leqq 430$$

4. The duplexer as claimed in claim 3, wherein the relationship among the film thickness $h_k$, the specific gravity $a_k$, the center frequency $f_1$, and the center frequency $f_2$, is expressed as:

$$300 \leqq f_1 \times \sum_{k=1}^{n} (\alpha_k \times h_k) \leqq 420$$

$$350 \leqq f_2 \times \sum_{k=1}^{n} (\alpha_k \times h_k) \leqq 410$$

5. The duplexer as claimed in claim 1, wherein the predetermined substrate is a rotated Y-cut X-propagation lithium tantalate substrate on which surface acoustic wave propagates in the X direction.

6.    The duplexer as claimed in claim 1,
comprising a plurality of multimode filters.

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